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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/618,615

07/18/2000

Gary W. Sinda

6573-62441

9299

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7590

06/16/2006

BARNES & THORNBURG
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EXAMINER

CHAMPAGNE, DONALD

ART UNIT

PAPER NUMBER

3622

DATE MAILED: 06/16/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/618,615

Applicant(s)

SINDE, GARY W.

Examiner

Donald L. Champagne

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 November 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-40 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-40 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 July 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Prosecution Reopened

1. A new, non-final, rejection follows in response to the appeal brief filed on 7 November 2005. A rejection under 35 U.S.C. 102(b) has been added, and an amendment for overcoming this new rejection is suggested (para. xx). The previous rejection under 35 U.S.C. 103(a) remains unchanged.

Claim Rejections - 35 USC § 102 and 35 USC § 103

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-4, 6-9, 11-14, 16-19, 21-24, 26-29, 31-34 and 36-39 are rejected under 35 U.S.C. 103(a) as being obvious over Nickolls et al. (US005251626A).
5. Nickolls et al. teaches (independent claims 1 and 21) a method and apparatus for detecting arrhythmias (abnormal heart rhythms) by electrocardiographically (ECG) monitoring the human electrical system, including classifying ECG waveforms (col. 5 lines 48-54), which reads on storing frequency spectra of known arrhythmias (col. 7 lines 3-8 and Figs. 7-9), comparing the input ECG spectra with the spectra of known arrhythmias, and determining from the comparison which of the frequency spectra of known arrhythmias is closest to the

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input ECG spectra (col. 11 lines 28-38 and Figs. 4 and 5, described at col. 12 line 11 to col. 13 line 65).¹

6. Nickolls et al. does not teach that said method and apparatus for identifying internally generated ECG noise is applicable for identifying "ingress noise", which is to say externally generated noise in communication networks. Because the two problems are mathematically analogous, it would have been obvious to one of ordinary skill in the art, at the time of the invention, to apply the teachings of Nickolls et al. to the identification of ingress noise.
7. Applicant argues (pp. 8-11 of the arguments filed on 18 January 2005) that Nickolls et al. is non-analogous art to the present invention. That is correct, but It has been held that a prior art reference must either be in the field of applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the applicant was concerned, in order to be relied upon as a basis for rejection of the claimed invention (In re Oetiker, 977 F.2d 1443, 1446, 24 USPQ2d 1443, 1445 (Fed. Cir. 1992). See also In re Deminski, 796 F.2d 436, 230 USPQ 313 (Fed. Cir. 1986); In re Clay, 966 F.2d 656, 659, 23 USPQ2d 1058, 1060-61 (Fed. Cir. 1992) ("**A reference is reasonably pertinent if, even though it may be in a different field from that of the inventor's endeavor, it is one which, because of the matter with which it deals, logically would have commended itself to an inventor's attention in considering his problem.**"); * Wang Laboratories Inc. v. Toshiba Corp., 993 F.2d 858, 26 USPQ2d 1767 (Fed. Cir. 1993)>; and State Contracting & Eng'g Corp. v. Condotte America, Inc., 346 F.3d 1057, 1069, 68 USPQ2d 1481, 1490 (Fed. Cir. 2003) (**Where the general scope of a reference is outside the pertinent field of endeavor, the reference may be considered analogous art if subject matter disclosed therein is relevant to the particular problem with which the inventor is involved**)<.
8. The instant and reference inventions differ only in whether or not the subject noise is generated externally (the instant invention) or internally (the reference invention). The problem is essentially mathematical, and one of ordinary skill in the art would readily see that identifying noise is identifying noise whatever its source. Nickolls et al. is more than "reasonably pertinent": it's teaching is central to the problem at hand.

¹ MedicineNet.com defines "QRS complex".

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9. Nickolls et al. also teaches analog, digital and hybrid analog-digital networks (col. 6 lines 22-23 and col. 11 lines 3-4) and optimization by use of a back propagation neural network (col. 5 lines 48-49).
10. Claims 5, 10, 15, 20, 25, 30, 35 and 40 are rejected under 35 U.S.C. 103(a) as being obvious over Nickolls et al. in view of Eberhart et al. (US006516309B1). Nickolls et al. does not teach a particle swarm optimizer. Eberhart et al. teaches a particle swarm optimizer (PSO, Abstract and col. 2 line 47 to col. 3 line 10). Because Eberhart et al. teaches that PSO can improve the efficiency of diagnostic neural networks (col. 1 line 64 to col. 2 line 7), it would have been obvious to one of ordinary skill in the art, at the time of the invention, to add the teachings of Eberhart et al. to those of Nickolls et al.
11. Applicant argues (pp. 11-15 of the arguments filed on 18 January 2005) that no motivation is given for combining the references. Applicant has failed to address the following motivation in para. 9: "Because Eberhart et al. teaches that PSO can improve the efficiency of diagnostic neural networks (col. 1 line 64 to col. 2 line 7), it would have been obvious to one of ordinary skill in the art, at the time of the invention, to add the teachings of Eberhart et al. to those of Nickolls et al."
12. Claims 1-4, 6-9, 11-14, 16-19, 21-24, 26-29, 31-34 and 36-39 are rejected under 35 U.S.C. 102(b) as being anticipated by Nickolls et al. (US005251626A).
13. Nickolls et al. teaches (independent claims 1 and 21) a method and apparatus for detecting arrhythmias (abnormal heart rhythms) by monitoring the human nervous system (col. 9 lines 47-48), which reads on identifying a source of ingress into a network (para. 14 below), including classifying electrocardiogram (ECG) waveforms (col. 5 lines 48-54), which reads on storing frequency spectra of known arrhythmias (col. 7 lines 3-8 and Figs. 7-9), comparing the input ECG spectra with the spectra of known arrhythmias, and determining from the comparison which of the frequency spectra of known arrhythmias is closest to the input ECG spectra (col. 11 lines 28-38 and Figs. 4 and 5, described at col. 12 line 11 to col. 13 line 65).
14. The human nervous system is a network. Arrhythmias have physiological causes external to said nervous system network:

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"The physiologic events that cause arrhythmias originate in the heart rather than the central nervous system." (Peel, III, US005865756A, col. 2 lines 17-20)

"The mechanism of cardiac arrhythmia is suspected to be caused by an abnormal "focus" in the ventricle of the heart which sends out (fires) nerve signals more rapidly than required for the normal beating of the heart." (Matuo et al., US pat. 3,936,449, col. 3 line 67 to col. 4 line 3)

"They are suitable, therefore, for treating arrhythmias, in particular when the latter are caused by a lack of oxygen, angina pectoris, infarctions, ischaemias of the nervous system, such as, for example, stroke or cerebral oedemas, and conditions of shock, and also for preventive treatment." (Gericke et al., US005461066A, col. 9 lines 4-9)

Hence, monitoring electrocardiogram waveforms so as to determine the onset of an arrhythmia reads on identifying a source of ingress into a network.

15. Nickolls et al. also teaches analog, digital and hybrid analog-digital networks (col. 6 lines 22-23 and col. 11 lines 3-4) and optimization by use of a back propagation neural network (col. 5 lines 48-49).

Suggestion of Allowable Subject Matter

16. The rejection given above under 35 USC § 102(b) can be overcome by limiting the independent claims (e.g., claim 1 line 1) to a man-made network. This limitation is not literally disclosed, but it can be added to the claims because man-made networks are disclosed (e.g., at spec. p. 1 lines 9-13).
17. Should applicant choose to so amend the claims, applicant should also submit arguments as to how such an amendment would affect the rejection under 35 USC § 103(a).
18. Applicant is cautioned that an allowance could not be considered until this or any other amendment was searched.

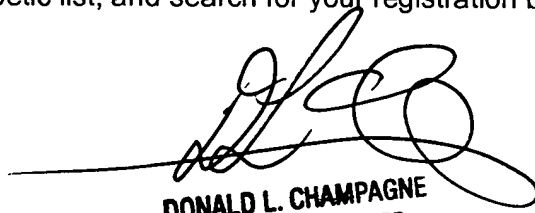
Conclusion

19. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Donald L Champagne whose telephone number is 571-272-6717. The examiner can normally be reached from 8:30 AM to 7 PM ET, Monday to Thursday. The examiner can also be contacted by e-mail at donald.champagne@uspto.gov, and *informal*

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fax communications (i.e., communications not to be made of record) may be sent directly to the examiner at 571-273-6717.

20. The examiner's supervisor, Eric Stamber can be reached on 571-272-6724. The fax phone number for all *formal* fax communications is 571-273-8300.
21. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).
22. **ABANDONMENT** – If examiner cannot by telephone verify applicant's intent to continue prosecution, the application is subject to abandonment six months after mailing of the last Office action. The agent, attorney or applicant point of contact is responsible for assuring that the Office has their telephone number. Agents and attorneys may verify their registration information including telephone number at the Office's web site, www.uspto.gov. At the top of the home page, click on Site Index. Then click on Agent & Attorney Roster in the alphabetic list, and search for your registration by your name or number.



DONALD L. CHAMPAGNE
PRIMARY EXAMINER

Donald L. Champagne
Primary Examiner
Art Unit 3622

10 June 2006